

IN THE CLAIMS:

1. (Currently Amended) A method for controlling virtual memory in a computer system with a plurality of process contexts, wherein the system ~~having~~ comprises a mapping structure for address translations, wherein the mapping structure including comprises a plurality of translation entries, the method comprising:

setting a translation entry mapping indicator for each translation entry associated with a given context to the value of a mapping indicator for the given context; ~~and~~

setting a validity flag for each translation entry associated with the given context; and

demapping the given context by changing the mapping indicator and a cleanup indicator for the given context.

2. (Currently Amended) A method according to claim 1, wherein ~~demapping the given context further includes changing a cleanup indicator for the given context~~ each translation entry comprises a context tag to identify one of the contexts to be associated with the translation entry.

3. (Currently Amended) A method according to claim ~~[[2]]~~ 1, wherein the cleanup indicator for each context, the mapping indicator for each context, the mapping indicator for each translation entry and the validity flag for each translation entry are each a single bit.

4. (Currently Amended) A method according to claim ~~[[2]]~~ 1, wherein the mapping structure is a translation lookaside buffer.

5. (Currently Amended) A method according to claim ~~[[2]]~~ 1, wherein the mapping structure is a table.

6. (Currently Amended) A method according to claim ~~[[2]]~~ 1, wherein the mapping structure is a linked list.

7. (Currently Amended) A method according to claim 1, wherein the cleanup indicator for

each context, the mapping indicator for each context, the mapping indicator for each translation entry and the validity flag for each translation entry are each two or more bits demapping a given context further includes:

~~clearing the validity flag for a given translation entry when the translation entry mapping indicator for the given translation entry does not match the mapping indicator for the context associated with the entry.~~

8. (Currently Amended) A method according to claim 1 further ~~including~~ comprising:

~~reading a given translation entry and accessing a physical memory location based at least on the validity flag for the given translation entry and whether the translation entry mapping indicator value for the given translation entry equals the mapping indicator value for the context associated with the entry~~

reading the cleanup indicator for each context, wherein if the cleanup indicator for a context indicates that the context has been demapped:

scanning the mapping structure and clearing the validity flag for each of the translation entries in which the mapping indicator for the associated context does not equal the translation entry mapping indicator for the entry, and

setting the cleanup indicator for the context to indicate that the context is available for mapping.

9. (Currently Amended) A method for controlling virtual memory in a computer system with a plurality of process contexts, the contexts each ~~having~~ comprising a mapping indicator and a cleanup indicator, wherein the system ~~having~~ comprises a mapping structure for address translations, the mapping structure ~~including~~ comprising a plurality of translation entries, wherein the translation entries each ~~containing~~ comprise a validity flag and a translation entry mapping indicator, wherein the translation entries are each associated with one of the plurality of contexts, the method comprising:

reading the cleanup indicator for each context to identify a group of contexts, wherein if the cleanup indicator for each context in the group of contexts ~~indicating~~ indicates that a context

version has been demapped [[:]] :

~~then~~ scanning the mapping structure and clearing the validity flag for each translation entry in which the mapping indicator for the associated context does not equal the translation entry mapping indicator for the entry[[:]] and

~~then~~ setting the cleanup indicator for each context version in the group of contexts to indicate that the context version is available for mapping.

10. (Currently Amended) A memory management device for a computer system ~~including~~ comprising:

a plurality of process contexts ~~including~~ comprising a mapping indicator and a cleanup indicator for each context;

a mapping structure ~~, the structure including~~ comprising a plurality of translation entries, wherein the translation entries each ~~containing~~ comprise a validity flag and a translation entry mapping indicator for the entry;

logic ~~that sets~~ configured to set the translation entry mapping indicator for each translation entry associated with a given context to the value of the mapping indicator for the given context and ~~sets~~ set the validity flag for the entry; and

logic ~~that demaps~~ configured to demap the given context by changing the mapping indicator for the given context.

11. (Currently Amended) A memory management device as in claim 10, wherein the logic ~~that demaps~~ that is configured to demap the given context ~~further includes logic that changes is~~ also configured to change the cleanup indicator for the given context.

12. (Original) A memory management device as in claim 10 wherein the mapping structure is a translation lookaside buffer.

13. (Original) A memory management device as in claim 10 wherein the mapping structure is a table.

14. (Original) A memory management device as in claim 10 wherein the mapping structure is a linked list.

15. (Currently Amended) A memory management device as in claim 10, further ~~including~~ comprising:

logic ~~that clears~~ configured to clear the validity flag for a given translation entry when the translation entry mapping indicator for the given translation entry does not match the mapping indicator for the context associated with the entry, when at least one cleanup indicator indicates its associated context has been demapped.

16. (Currently Amended) A computer program product for use on a computer system for controlling virtual memory, wherein the system ~~including~~ comprises a plurality of process contexts, each process context ~~including~~ comprising a mapping indicator and a cleanup indicator, wherein the system further ~~including~~ comprises a mapping structure for address translations, the structure ~~including~~ comprising a plurality of translation entries, wherein the translation entries each ~~including~~ comprise a validity flag and a mapping indicator, wherein the computer program product comprising a computer usable medium having a computer readable program code thereon, the computer readable program code including program code for:

setting the translation entry mapping indicator for each translation entry associated with a given context to the value of the mapping indicator for the given context;

setting the validity flag for each translation entry associated with the given context; and

demapping the given context by changing the mapping indicator for the given context.

17. (Currently Amended) A computer program product according to claim 16, wherein the program code for demapping the given context further ~~includes~~ comprises code for changing the cleanup indicator for the given context.

18. (Currently Amended) A computer program product according to claim 17, the computer readable program code further ~~including~~ comprising program code for:

reading the cleanup indicator for each context to identify a group of contexts, wherein if the cleanup indicator for each context in the group of contexts ~~indicating~~ indicates that a context version has been demapped [[:]] :

~~then~~ scanning the mapping structure and clearing the validity flag for each translation entry in which the mapping indicator for the associated context does not equal the translation entry mapping indicator for the entry[[:]] and

~~then~~ setting the cleanup indicator for each context version in the group of contexts to indicate that the context version is available for mapping.

19. (New) A method for controlling virtual memory in a computer system with a plurality of process contexts, wherein the system comprises a mapping structure for address translations, wherein the mapping structure comprises a plurality of translation entries, the method comprising:

setting a translation entry mapping indicator for each translation entry associated with a given context to the value of a mapping indicator for the given context;

setting a validity flag for each translation entry associated with the given context; and

demapping the given context by changing the mapping indicator for the given context and clearing the validity flag for a given translation entry when the translation entry mapping indicator for the given translation entry does not match the mapping indicator for the given context associated with the entry.

20. (New) A method for controlling virtual memory in a computer system with a plurality of process contexts, wherein the system comprises a mapping structure for address translations, wherein the mapping structure comprises a plurality of translation entries, the method comprising:

setting a translation entry mapping indicator for each translation entry associated with a given context to the value of a mapping indicator for the given context;

setting a validity flag for each translation entry associated with the given context;

reading a given translation entry and accessing a physical memory location based at least on the validity flag for the given translation entry and also based on whether the translation entry

mapping indicator value for the given translation entry equals the mapping indicator value for the given context associated with the entry; and

demapping the given context by changing the mapping indicator for the given context.

21. (New) A system, comprising:

a memory management device for controlling virtual memory in the system, the memory management device comprising:

a plurality of process contexts comprising a mapping indicator and a cleanup indicator for each context;

a mapping structure comprising a plurality of translation entries, wherein the translation entries each comprise a validity flag and a translation entry mapping indicator for the entry;

logic configured to set the translation entry mapping indicator for each translation entry associated with a given context to the value of the mapping indicator for the given context and set the validity flag for the entry;

logic configured to read a given translation entry and to access a physical memory location based at least on the validity flag for the given translation entry and also based on whether the translation entry mapping indicator value for the given translation entry equals the mapping indicator value for the given context associated with the entry; and

logic configured to demap the given context by changing the mapping indicator for the given context.

22. (New) A system as in claim 21, further comprising:

logic configured to read the cleanup indicator for each context, wherein if the cleanup indicator for a context indicates that the context has been demapped:

the logic configured to read the cleanup indicator for each context is also configured to scan the mapping structure and clear the validity flag for each of the translation entries in which the mapping indicator for the associated context does not equal the translation entry mapping indicator for the entry, and

the logic configured to read the cleanup indicator for each context is further configured to set the cleanup indicator for the context to indicate that the context is available for mapping.